Practical-5

Prac – 5 (A) (Custom message)

Code:

```dart
import 'package:flutter/material.dart';

void main() {
  runApp(const CustomMessageApp());
}

class CustomMessageApp extends StatelessWidget {
  const CustomMessageApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Practical for Custom Message App',
      theme: ThemeData(
        primarySwatch: Colors.purple,
      ),
      home: const CustomMessageScreen(),
    );
  }
}

class CustomMessageScreen extends StatefulWidget {
  const CustomMessageScreen({Key? key}) : super(key: key);

  @override
  _CustomMessageScreenState createState() => _CustomMessageScreenState();
}
```
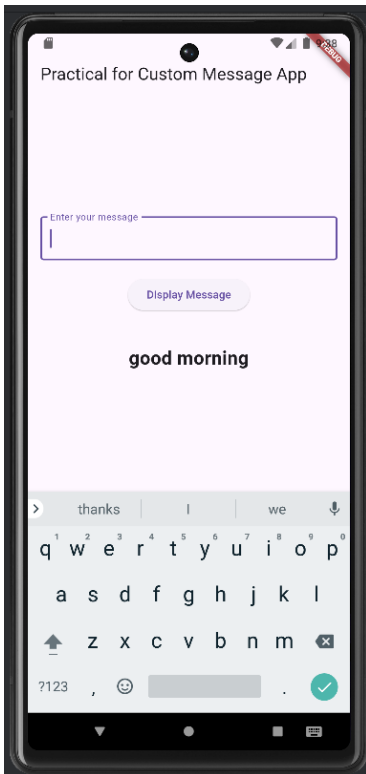
```dart
class _CustomMessageScreenState extends State<CustomMessageScreen> {
  String _message = 'The message will come here';
  final TextEditingController _controller = TextEditingController();

  void _updateMessage() {
    setState(() {
      _message = _controller.text;
    });
    _controller.clear(); // Clear the text field after submitting
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Practical for Custom Message App'),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            TextField(
              controller: _controller,
              decoration: const InputDecoration(
                border: OutlineInputBorder(),
                labelText: 'Enter your message',
              ),
            ),
            const SizedBox(height: 20),
```

```dart
            ElevatedButton(
              onPressed: _updateMessage,
              child: const Text('Display Message'),
            ),
            const SizedBox(height: 40),
            Text(
              _message,
              style: const TextStyle(
                fontSize: 24,
                fontWeight: FontWeight.bold,
              ),
              textAlign: TextAlign.center,
            ),
          ],
        ),
      ),
    );
  }
}
```

Prac – 5 (B) (Simple Calculator)

Code:

import 'package:flutter/material.dart';

void main() {
  runApp(const CalculatorApp());
}

class CalculatorApp extends StatelessWidget {
  const CalculatorApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Practical for Simple Calculator',
      theme: ThemeData(

```dart
          primarySwatch: Colors.purple,
        ),
        home: const CalculatorScreen(),
      );
    }
}


class CalculatorScreen extends StatefulWidget {
  const CalculatorScreen({Key? key}) : super(key: key);


  @override
  _CalculatorScreenState createState() => _CalculatorScreenState();
}


class _CalculatorScreenState extends State<CalculatorScreen> {
  String _output = '0';
  String _operand = '';
  double _num1 = 0;
  double _num2 = 0;


  void _buttonPressed(String buttonText) {
    setState(() {
      if (buttonText == 'C') {
        _output = '0';
        _num1 = 0;
        _num2 = 0;
        _operand = '';
      } else if (buttonText == '+' || buttonText == '-' || buttonText == '×' || buttonText == '÷') {
        _num1 = double.parse(_output);
        _operand = buttonText;
        _output = '0';
```

```dart
      } else if (buttonText == '=') {
        _num2 = double.parse(_output);
        if (_operand == '+') {
          _output = (_num1 + _num2).toString();
        } else if (_operand == '-') {
          _output = (_num1 - _num2).toString();
        } else if (_operand == '×') {
          _output = (_num1 * _num2).toString();
        } else if (_operand == '÷') {
          _output = (_num1 / _num2).toString();
        }
        _num1 = 0;
        _num2 = 0;
        _operand = '';
      } else {
        if (_output == '0') {
          _output = buttonText;
        } else {
          _output += buttonText;
        }
      }
    });
  }

Widget _buildButton(String buttonText) {
  return Expanded(
    child: Padding(
      padding: const EdgeInsets.all(8.0),
      child: ElevatedButton(
        onPressed: () => _buttonPressed(buttonText),
        child: Text(
```

```dart
          buttonText,
          style: const TextStyle(
            fontSize: 24.0,
            fontWeight: FontWeight.bold,
          ),
        ),
      ),
    ),
  );
}


@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text('Practical for Simple Calculator'),
      backgroundColor: Colors.purpleAccent,
    ),
    body: Column(
      children: <Widget>[
        Expanded(
          child: Container(
            padding: const EdgeInsets.all(24.0),
            alignment: Alignment.centerRight,
            child: Text(
              _output,
              style: const TextStyle(
                fontSize: 48.0,
                fontWeight: FontWeight.bold,
              ),
            ),
```
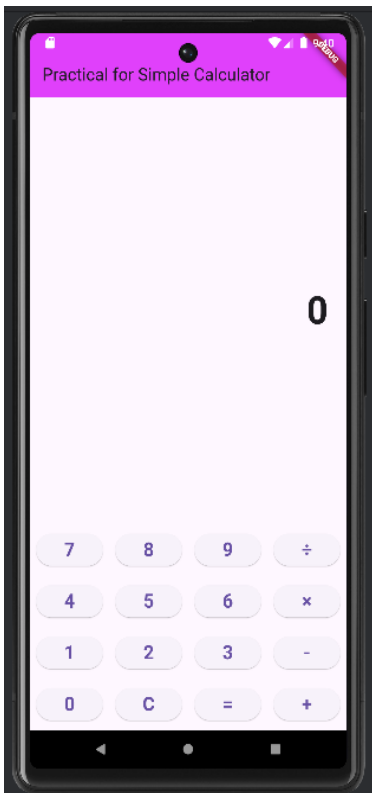
```dart
        ),
      ),
      Column(
        children: <Widget>[
          Row(
            children: <Widget>[
              _buildButton('7'),
              _buildButton('8'),
              _buildButton('9'),
              _buildButton('÷'),
            ],
          ),
          Row(
            children: <Widget>[
              _buildButton('4'),
              _buildButton('5'),
              _buildButton('6'),
              _buildButton('×'),
            ],
          ),
          Row(
            children: <Widget>[
              _buildButton('1'),
              _buildButton('2'),
              _buildButton('3'),
              _buildButton('-'),
            ],
          ),
          Row(
            children: <Widget>[
              _buildButton('0'),
```

```
            _buildButton('C'),

              _buildButton('='),

              _buildButton('+'),

          ],

        ),

      ],

    ),

  ],

  ),

  );

  }

}
```

Practical-6

Part – 6 (ListView)

Code:

```
import 'package:flutter/material.dart';

void main() {
  runApp(const ListViewApp());
}

class ListViewApp extends StatelessWidget {
  const ListViewApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Practical for ListView with Separator',
      theme: ThemeData(
```

```dart
      primarySwatch: Colors.blue,
    ),
    color: Colors.greenAccent,
    debugShowCheckedModeBanner: false,
    home: const ListViewScreen(),
  );
 }
}


class ListViewScreen extends StatelessWidget {
 const ListViewScreen({Key? key}) : super(key: key);


 @override
 Widget build(BuildContext context) {
  // List of items (with leading, title, subtitle, trailing)
  final List<Map<String, dynamic>> items = [
    {
     'leading': Icons.person,
     'title': 'Item1',
     'subtitle': 'MyDesc',
     'trailing': Icons.add,
    },
    {
     'leading': Icons.person,
     'title': 'Item2',
     'subtitle': 'MyDesc',
     'trailing': Icons.add,
    },
    {
     'leading': Icons.person,
     'title': 'Item3',
```

```dart
        'subtitle': 'MyDesc',

        'trailing': Icons.add,

      },

      {

        'leading': Icons.person,

        'title': 'Item4',

        'subtitle': 'MyDesc',

        'trailing': Icons.add,

      },

      {

        'leading': Icons.person,

        'title': 'Item5',

        'subtitle': 'MyDesc',

        'trailing': Icons.add,

      },

      {

        'leading': Icons.person,

        'title': 'Item6',

        'subtitle': 'MyDesc',

        'trailing': Icons.add,

      },

    ];


    return Scaffold(

      appBar: AppBar(

        title: const Text('Practical for ListView with Separator'),

        backgroundColor: Colors.greenAccent,

      ),

      body: ListView.separated(

        itemCount: items.length,

        itemBuilder: (context, index) {
```
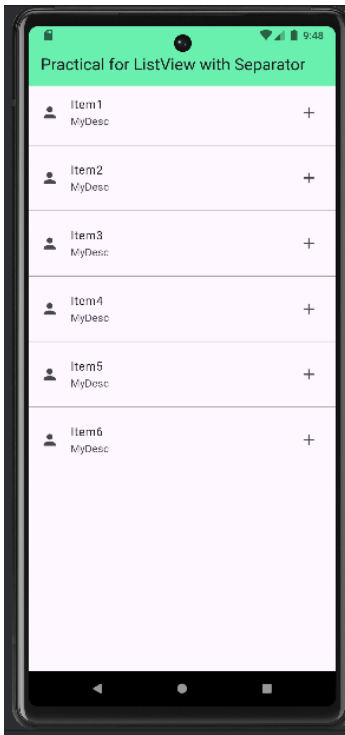
```dart
      return ListTile(
        leading: Icon(items[index]['leading']),
        title: Text(items[index]['title']),
        subtitle: Text(items[index]['subtitle']),
        trailing: Icon(items[index]['trailing']),
        onTap: () {
          // Handle item tap if needed
          print('Clicked and Tapped on ${items[index]['title']}');
        },
      );
    },
    separatorBuilder: (context, index) {
      return const Divider(
        color: Colors.grey,
        thickness: 1.0,
      );
    },
    ),
  );
 }
}
```

Practical-7

Part – 7 (Grid Layout)

Code:

import 'package:flutter/material.dart';

void main() {

 runApp(const LayoutApp());

}

class LayoutApp extends StatelessWidget {

 const LayoutApp({Key? key}) : super(key: key);

 @override

 Widget build(BuildContext context) {

  return MaterialApp(

   title: 'Custom Layout',

```dart
      home: const LayoutScreen(),
    );
  }
}


class LayoutScreen extends StatelessWidget {
  const LayoutScreen({Key? key}) : super(key: key);


  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Practical for Layout'),
      ),
      body: Column(
        children: [
          // First half of the layout
          Expanded(
            child: Row(
              children: [
                // Large box on the left
                Expanded(
                  flex: 1,
                  child: Container(
                    color: Colors.pinkAccent,
                    child: const Center(
                      child: Text(
                        '1',
                        style: TextStyle(
                          fontSize: 48,
                          color: Colors.white,
```

```dart
            ),
          ),
        ),
      ),
    ),
    // Right grid layout (2x2)
    Expanded(
      child: Column(
        children: [
          Expanded(
            child: Row(
              children: [
                Expanded(
                  child: Container(
                    color: Colors.green,
                    child: const Center(
                      child: Text(
                        '2',
                        style: TextStyle(
                          fontSize: 24,
                          color: Colors.white,
                        ),
                      ),
                    ),
                  ),
                ),
                Expanded(
                  child: Container(
                    color: Colors.orange,
                    child: const Center(
                      child: Text(
```

```dart
            '3',
              style: TextStyle(
                fontSize: 24,
                color: Colors.white,
              ),
            ),
          ),
        ),
      ),
      Expanded(
        child: Container(
          color: Colors.red,
          child: const Center(
            child: Text(
              '4',
              style: TextStyle(
                fontSize: 24,
                color: Colors.white,
              ),
            ),
          ),
        ),
      ),
    ],
  ),
),
Expanded(
  child: Row(
    children: [
      Expanded(
        flex: 2,
```

```dart
              child: Container(
                color: Colors.purple,
                child: const Center(
                  child: Text(
                    '5',
                    style: TextStyle(
                      fontSize: 24,
                      color: Colors.white,
                    ),
                  ),
                ),
              ),
            ),
            Expanded(
              child: Container(
                color: Colors.blue,
                child: const Center(
                  child: Text(
                    '6',
                    style: TextStyle(
                      fontSize: 24,
                      color: Colors.white,
                    ),
                  ),
                ),
              ),
            ),
          ],
        ),
      ),
    ],
```

```
          ),
        ),
      ],
    ),
  ),
  // Second half of the layout (mirror of the first)
  Expanded(
    child: Row(
      children: [
        // Left grid layout (2x2)
        Expanded(
          child: Column(
            children: [
              Expanded(
                child: Row(
                  children: [
                    Expanded(
                      flex: 2,
                      child: Container(
                        color: Colors.purple,
                        child: const Center(
                          child: Text(
                            '5',
                            style: TextStyle(
                              fontSize: 24,
                              color: Colors.white,
                            ),
                          ),
                        ),
                      ),
                    ),
                    ),
```

```
              Expanded(
                child: Container(
                  color: Colors.blue,
                  child: const Center(
                    child: Text(
                      '6',
                      style: TextStyle(
                        fontSize: 24,
                        color: Colors.white,
                      ),
                    ),
                  ),
                ),
              ),
            ],
          ),
        ),
        Expanded(
          child: Row(
            children: [
              Expanded(
                child: Container(
                  color: Colors.green,
                  child: const Center(
                    child: Text(
                      '2',
                      style: TextStyle(
                        fontSize: 24,
                        color: Colors.white,
                      ),
                    ),
```

```
      ),
    ),
  ),
  Expanded(
    child: Container(
      color: Colors.orange,
      child: const Center(
        child: Text(
          '3',
          style: TextStyle(
            fontSize: 24,
            color: Colors.white,
          ),
        ),
      ),
    ),
  ),
  Expanded(
    child: Container(
      color: Colors.red,
      child: const Center(
        child: Text(
          '4',
          style: TextStyle(
            fontSize: 24,
            color: Colors.white,
          ),
        ),
      ),
    ),
  ),
```

```dart
          ],
        ),
      ),
    ],
  ),
),
// Large box on the right
Expanded(
  flex: 1,
  child: Container(
    color: Colors.pinkAccent,
    child: const Center(
      child: Text(
        '1',
        style: TextStyle(
          fontSize: 48,
          color: Colors.white,
        ),
      ),
    ),
  ),
),
    ],
  ),
),
  );
}
}
```
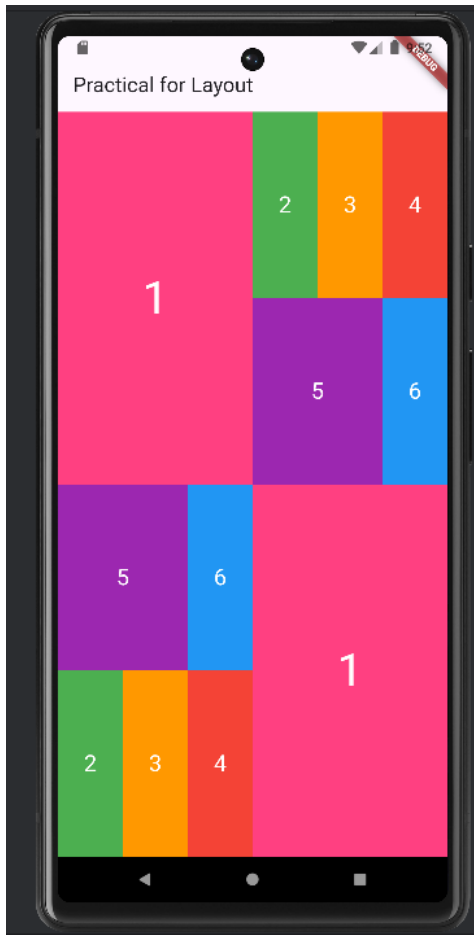
Practical-8

Part – 8 (A) (Container with ScrollView)

Code:

```dart
import 'package:flutter/material.dart';

void main() {
  runApp(const ScrollApp());
}

class ScrollApp extends StatelessWidget {
  const ScrollApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'ScrollView Example',
      home: const ScrollScreen(),
    );
  }
}

class ScrollScreen extends StatelessWidget {
  const ScrollScreen({Key? key}) : super(key: key);

  // Define a list of custom colors as a constant
  static const List<Color> customColors = [
    Colors.red,
    Colors.blue,
    Colors.green,
    Colors.orange,
    Colors.purple,
    Colors.teal,
    Colors.indigo,
    Colors.yellow,
```
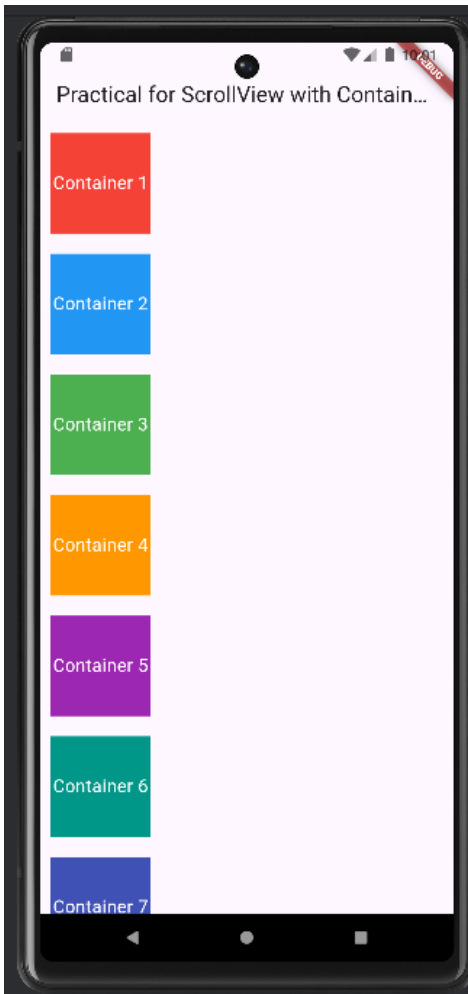
```dart
    Colors.brown,
    Colors.cyan,
  ];

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Practical for ScrollView with Containers'),
      ),
      body: SingleChildScrollView(
        child: Column(
          children: List.generate(10, (index) {
            return Container(
              width: 100,
              height: 100,
              margin: const EdgeInsets.all(10),
              color: customColors[index % customColors.length], // Use custom colors
              child: Center(
                child: Text(
                  'Container ${index + 1}',
                  style: const TextStyle(
                    fontSize: 18,
                    color: Colors.white,
                  ),
                ),
              ),
            );
          }),
        ),
      ),
```

```
  );
 }
}
```


Part – 8 (B) (Custom font)

first download the font from google fonts

extract it to 'fonts' folder of the project

if 'fonts' not exist create it

change under main.dart

Code:

import 'package:flutter/material.dart';

void main() {

```dart
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Custom Font Demo',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: MyHomePage(),
    );
  }
}

class MyHomePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Practical for Custom Font Demo'),
      ),
      body: Center(

        child: Text(
          'Custom Font! '
            'Poppins',
          style: TextStyle(
            color: Colors.blue,
            fontFamily: 'Poppins',
```

```
            fontSize: 20,

            fontWeight: FontWeight.bold,

        ),

      ),

    ),

  );

 }

}
```
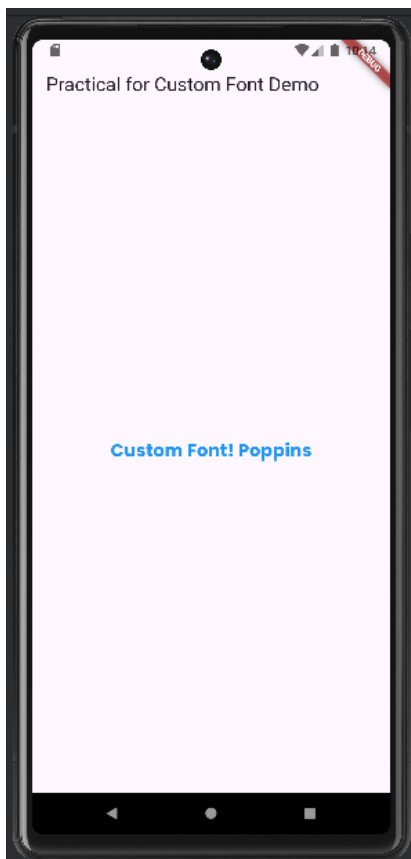
pubspec.yaml

```
flutter:

fonts:

    - family: Poppins

      fonts:

        - asset: fonts/Poppins-Regular.ttf

        - asset: fonts/Poppins-Bold.ttf

          weight: 600
```

Practical-9e

Part – 9 (A) (Login page)

Code:

```
import 'package:flutter/material.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Login App',
```

```dart
      theme: ThemeData(
        primarySwatch: Colors.yellow,
      ),
      home: LoginPage(),
    );
  }
}


class LoginPage extends StatefulWidget {
  @override
  _LoginPageState createState() => _LoginPageState();
}


class _LoginPageState extends State<LoginPage> {
  final TextEditingController _usernameController = TextEditingController();
  final TextEditingController _passwordController = TextEditingController();
  String _message = '';


  void _login() {
    // Replace with your actual username and password
    const String correctUsername ='admin';
    const String correctPassword = 'pass';


    String username = _usernameController.text;
    String password = _passwordController.text;


    setState(() {
      if (username == correctUsername && password == correctPassword) {
        _message = 'Yayy!!Login Successful!';
      } else {
        _message = 'SorryLogin Failed! Incorrect username or password.';
```

```dart
    }
  });
}


@override
Widget build(BuildContext context) {
  return Scaffold(
    body: Container(
      decoration: BoxDecoration(
        gradient: LinearGradient(
          colors: [Colors.yellow[300]!, Colors.yellow[800]!],
          begin: Alignment.topLeft,
          end: Alignment.bottomRight,
        ),
      ),
      child: Center(
        child: Padding(
          padding: const EdgeInsets.all(32.0),
          child: Card(
            elevation: 8,
            shape: RoundedRectangleBorder(
              borderRadius: BorderRadius.circular(16),
            ),
            child: Padding(
              padding: const EdgeInsets.all(24.0),
              child: Column(
                mainAxisSize: MainAxisSize.min,
                children: [
                  Text(
                    'Login Application',
                    style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold),
```
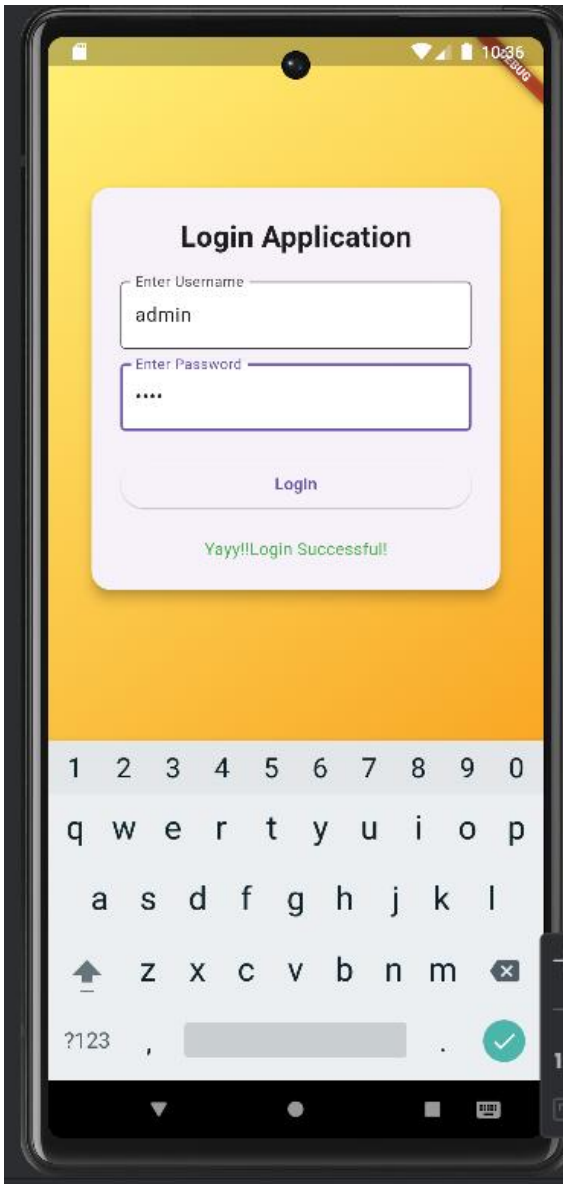
```dart
      ),
      SizedBox(height: 20),
      TextField(
        controller: _usernameController,
        decoration: InputDecoration(
          labelText: 'Enter Username',
          border: OutlineInputBorder(),
          filled: true,
          fillColor: Colors.white,
        ),
      ),
      SizedBox(height: 12),
      TextField(
        controller: _passwordController,
        decoration: InputDecoration(
          labelText: 'Enter Password',
          border: OutlineInputBorder(),
          filled: true,
          fillColor: Colors.white,
        ),
        obscureText: true,
      ),
      SizedBox(height: 20),
      ElevatedButton(
        onPressed: _login,
        child: Text('Login'),
        style: ElevatedButton.styleFrom(
          minimumSize: Size(double.infinity, 40),
          padding: EdgeInsets.symmetric(horizontal: 16),
        ),
      ),
```

```dart
              SizedBox(height: 20),
              Text(
                _message,
                style: TextStyle(
                  color: _message.startsWith('Yayy!!Login Successful!') ? Colors.green : Colors.red,
                ),
              ),
            ],
          ),
        ),
      ),
    ),
  );
}
}
```

Part – 9 (B) (First -> second screen)

Code:

```
import 'package:flutter/material.dart';


void main() {
 runApp(MyApp());
}


class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
```

```dart
    return MaterialApp(
      title: 'Data Pass App',
      theme: ThemeData(
        primarySwatch: Colors.yellow,
      ),
      home: FirstScreen(),
    );
  }
}


class FirstScreen extends StatelessWidget {
  final TextEditingController _controller = TextEditingController();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('User Screen One'),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Center(
          child: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              Text(
                'Enter the data that you want to see to the next screen',
                style: TextStyle(fontSize: 18),
                textAlign: TextAlign.center,
              ),
              SizedBox(height: 20),
```

```
TextField(
  controller: _controller,
  decoration: InputDecoration(
    labelText: 'User Data',
    border: OutlineInputBorder(),
    filled: true,
    fillColor: Colors.white,
    prefixIcon: Icon(Icons.input),
  ),
),
SizedBox(height: 20),
ElevatedButton(
  onPressed: () {
    if (_controller.text.isNotEmpty) {
      Navigator.push(
        context,
        MaterialPageRoute(
          builder: (context) => SecondScreen(data: _controller.text),
        ),
      );
    } else {
      ScaffoldMessenger.of(context).showSnackBar(
        SnackBar(content: Text('Please enter some data')),
      );
    }
  },
  child: Text('Pass User Data to User Screen Two'),
  style: ElevatedButton.styleFrom(
    backgroundColor: Colors.yellow, // Set button color to yellow
    foregroundColor: Colors.black,  // Set text color to black
    minimumSize: Size(double.infinity, 50),
```

```dart
            ),
          ),
        ],
      ),
    ),
  ),
);
  }
}

class SecondScreen extends StatelessWidget {
  final String data;

  SecondScreen({required this.data});

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('User Screen Two'),
      ),
      body: Center(
        child: Padding(
          padding: const EdgeInsets.all(16.0),
          child: Card(
            elevation: 8,
            shape: RoundedRectangleBorder(
              borderRadius: BorderRadius.circular(16),
            ),
            child: Padding(
              padding: const EdgeInsets.all(24.0),
```
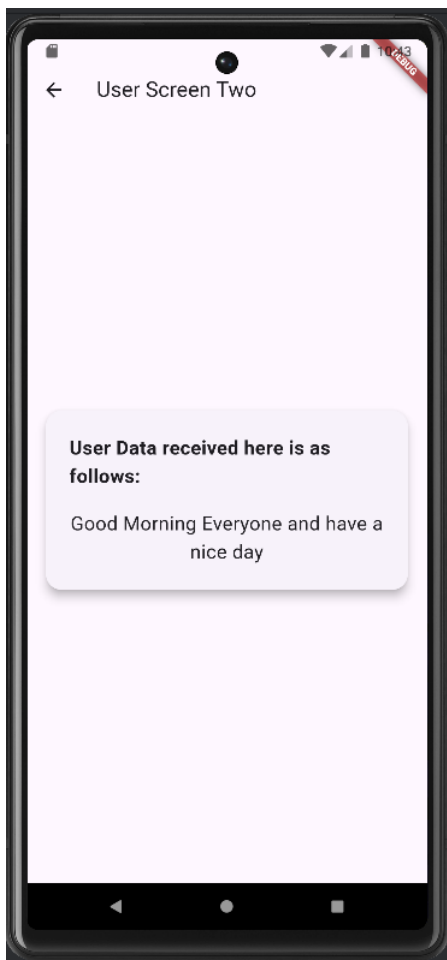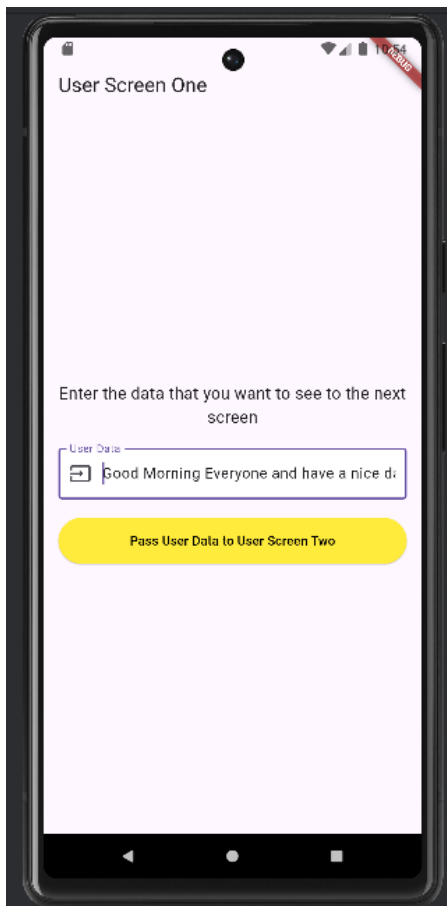
```dart
      child: Column(
        mainAxisSize: MainAxisSize.min,
        children: [
          Text(
            'User Data received here is as follows:',
            style: TextStyle(fontSize: 20, fontWeight: FontWeight.bold),
          ),
          SizedBox(height: 20),
          Text(
            data,
            style: TextStyle(fontSize: 20),
            textAlign: TextAlign.center,
          ),
        ],
      ),
    ),
  ),
);
}
}
```

User Screen One

Enter the data that you want to see to the next screen

User Data
Good Morning Everyone and have a nice da

Pass User Data to User Screen Two

User Screen Two

User Data received here is as follows:

Good Morning Everyone and have a nice day

Practical-10

Part – 10 (Hero Animation)

change in main.dart

Code:

import 'package:flutter/material.dart';

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(

```dart
      title: 'Practical for Hero Animation',

      theme: ThemeData(

        primarySwatch: Colors.yellow,

      ),

      home: FirstPage(),

    );

  }

}


class FirstPage extends StatelessWidget {

  @override

  Widget build(BuildContext context) {

    return Scaffold(

      appBar: AppBar(

        title: Text('Practical for Hero Animation'),

      ),

      body: Center(

        child: GestureDetector(

          onTap: () {

            Navigator.of(context).push(

              MaterialPageRoute(

                builder: (context) => SecondPage(),

              ),

            );

          },

          child: Hero(

            tag: 'hero-image',

            child: Image.asset(

              'assets/image2.jpg',

              width: 100,

              height: 100,
```

```dart
        ),
      ),
    ),
   ),
  );
 }
}


class SecondPage extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   appBar: AppBar(
    title: Text('Hero Animation!!!'),
   ),
   body: Center(
    child: Hero(
     tag: 'hero-image',
     child: Image.asset('assets/image3.jpg'),
    ),
   ),
  );
 }
}
```

pubsec.yaml file

```yaml
flutter:
 uses-material-design: true


 assets:
  - assets/image1.jpg
  - assets/image2.jpg
```

- assets/image3.jpg